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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314				
EXAMINER				
TESKIN, FRED M				
ART UNIT		PAPER NUMBER		
1796				
NOTIFICATION DATE		DELIVERY MODE		
12/26/2008		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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# Office Action Summary

**Application No.**

10/578,466

**Applicant(s)**

AMRHEIN ET AL.

**Examiner**

Fred M. Teskin

**Art Unit**

1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF 298)  
Paper No(s)/Mail Date 20061018
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_

**Detailed Action**

This Office action is responsive to application filed May 5, 2006, and accompanied by a preliminary amendment, which has been entered. Claims 1-5 are currently pending and under examination herein.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3 and 4 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over US 4082659 (Heinze).

Claimed invention is a process for preparing polymer powder from an aqueous polymer dispersion with water-soluble compounds, the fraction of such compounds being smaller than that of said aqueous polymer dispersion and being based on the polymer present in the form of polymer particles insoluble in water, which comprises:

subjecting the aqueous polymer dispersion to membrane filtration in a first step of the process; and spray drying in a subsequent second step of the process.

Heinze is directed to a process for concentrating polyvinyl chloride latices by ultra-filtration performed by means of a semi-permeable membrane having a defined partition cut and which was pre-treated with an emulsifier solution prior to the ultra-filtration. As disclosed, the process includes a first step of subjecting a vinyl chloride (co)polymer latex to ultra-filtration by means of such semi-permeable membrane and a second step of spray-drying the concentrated latex to yield polymer powder. See column 1, lines 60+ and Example 1. Heinze teaches that if latices concentrated according to the disclosed process are subject to further treatment such as spray drying, much less energy is needed, since a smaller quantity of water has to be evaporated (col. 4, lines 58+). In regard to the "membrane filtration" term in claim 1, it is noted that applicants have defined this term to include ultrafiltration (*cf.* Specification page 9). As to the claimed fraction of water-soluble compounds, examples of which include emulsifiers, Heinze teaches that by using the membranes submitted to the pretreatment described therein, "it is possible to separate from the polymer a part of the low-molecular substances. This may be important for the quality of the product. For example, ...transparent sheets should preferably contain a reduced rate of an emulsifier." (Column 5, lines 19-26.) Example 1 also reports that the filtration product contained 0.5 wt-% of auxiliary materials (col. 6, lines 1-4). This is seen to indicate the fraction of water-soluble compounds in the concentrated latex produced per Heinze is reduced relative to that of the starting polyvinyl chloride latex. As such, Heinze is considered to disclose an embodiment of the process defined by claim 1.

As to claims 3 and 4, Hienze does not quantify the content of water-soluble substances in the latex following the ultra-filtration step but, as noted above, indicates that the pretreated membranes make possible the separation of auxiliary materials such as emulsifier from the polymer, and employs the same procedural steps as the claimed process. Examiner therefore has a plausible basis for finding that a content of water-soluble substances within the ranges claimed may be inherent in the concentrated latices produced by ultra-filtration according to the examples of Heinze. Where a reference discloses all the limitations of a claim except for a property or function, and examiner cannot determine whether or not the reference inherently possesses properties which anticipate or render obvious the claimed invention, basis exists for shifting the burden of proof to applicant. *See, In re Fitzgerald et al*, 205 USPQ 594, 596 (CCPA 1980) and MPEP 2112-2112.02.

Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as being unpatentable over US 4340702 (Huddleston).

Huddleston has disclosed a process for producing vinyl resin latices which includes the step of subjecting a vinyl resin latex to ultrafiltration by forcing the latex through a semi-permeable membrane, leaving behind the polymer particles and reusing the permeate, which is said to contain dissolved monomer(s) and emulsifier (col. 2, lines 11-20). Example 1 details a series of runs using a PVC latex prepared from a recipe containing 0.9 parts sodium lauryl sulfate. The latex was run through an ultrafiltration unit yielding a permeate containing 0.14 % by weight of sodium lauryl sulfate. The

fraction of this water-soluble compound in the concentrated latex thus appears to have been reduced, relative to the starting PVC latex, in compliance with claim 1. While Example 1 does not describe a second step of spray drying, the stated purpose of ultrafiltration as per Huddleston is to increase the solids content of the polymer latex and decrease the energy required in the subsequent spray drying step, wherein the dry polymer is isolated (col. 4, lines 58-61). Motivated by this economic benefit, it would have been obvious to one of ordinary skill in the art at the time of the invention to subject the PVC latex of Huddleston to spray drying in a subsequent step to the ultrafiltration step exemplified therein. Regarding claim 2, Huddleston defines the "vinyl resin dispersion" as referring to resins made by emulsion polymerization of vinyl chloride or vinylidene chloride alone or in admixture with vinylidene monomer(s) copolymerizable therewith in amounts as great as about 80 % by weight (col. 2, lines 29-32 and 55-59). Specific examples of suitable vinylidene monomers include (meth)acrylic acid, methyl (meth)acrylate, styrene and various styrene derivatives, and vinyl acetate (*Id.*, lines 38-51). Such copolymer compositions are considered to fall within the scope of claim 2 as read in light of the supporting disclosure (see, e.g., Specification at p. 3, lines 10-20 and p. 4, lines 1-10). It would have been obvious to one of ordinary skill in the art to apply the process of Huddleston to a vinyl or vinylidene chloride copolymer within claim 2 in lieu of PVC since latices of the former are taught by Huddleston to be suitable alternatives to emulsion-polymerized PVC and therefore would be expected to yield equivalent results.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Heinze or Huddleston, each taken in view of US 4859751 (Schulze).

Heinze and Huddleston are applied as in the preceding rejections. Neither reference teaches spray drying in the present of the claimed amount of inorganic antiblocking agent with an average particle size of from 0.001 to 20  $\mu\text{m}$ . The preparation of redispersible polymer powders by adding to an emulsion of vinyl chloride copolymer an antiblocking agent followed by spray drying (or freeze drying) the aqueous dispersion is known in the prior art as taught by Schulze. See in particular column 1, line 60 to column 2, line 15 and column 7, lines 3-15 of Schulze, where suitable antiblocking agents are described. The use of specific inorganic materials such as silica, talcum and calcium carbonate having mean particle sizes of from 0.1 to 50  $\mu\text{m}$  in an amount of from 4 to 20 % by weight (based on polymeric constituents of the powder) is taught to be especially suitable. The disclosed ranges for mean (i.e., average) particle sizes and amount of the inorganic antiblocking agents substantially overlap the respective ranges recited in claim 5 for the corresponding parameters and, moreover, Schulze teaches such antiblocking agents as suitable for use in polymer dispersions similar in composition to those treated according to Heinze or Huddleston. Therefore, one would have expected them to perform equivalently in the spray drying step of the processes of the primary art. Accordingly, examiner takes the position that it would have been obvious to one of ordinary skill in the art to undertake the spray drying step of Heinze or Huddleston in the presence of from 0.01 to 10 parts by weight of an inorganic

antiblocking agent having an average particle size within the range claimed, in light of the teachings of Schulze.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Goldman is cited as pertinent to the use of particulate inorganic additives as spray drying aids in the isolation of impact modifier polymer powders (note examples).

No claims are in condition for allowance at this time.

Any inquiry concerning this communication should be directed to Examiner F. M. Teskin whose telephone number is (571) 272-1116. The examiner can normally be reached on Monday through Thursday from 7:00 AM - 4:30 PM, and can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached on (571) 272-1114. The appropriate fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.



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/Fred M Teskin/

Primary Examiner, Art Unit 1796

FMTeskin/12-18-08